In the Claims

1.   (Currently Amended) A method of MR data acquisition comprising the steps of:
interleaving sampling of peripheral regions of k-space and samplings of a center region of k-space, wherein performing the interleaved sampling comprises:
sampling a first peripheral region of k-space at a pre-selected temporal rate;

waiting a first predetermined period of time before sampling the center region of k-space, the center region being sampled at a faster temporal rate than the first peripheral region; ;

sampling a second peripheral region of k-space at the pre-selected temporal rate; and

waiting a second predetermined period of time different than the first predetermined period of time before sampling the center region of k-space, the center region being sampled at a faster temporal rate than the second peripheral region;

wherein the first and second predetermined periods of time are a function of a distance of the respective first and second peripheral regions from the center region of k-space, and wherein the predetermined period of time increases as the peripheral region distance from the center region of k-space increases.

2.   (Canceled)

3.   (Canceled)

4.   (Original) The method of claim 1 further comprising the step of maintaining steady state of the MR signal to minimize signal intensity variation.

5.   (Original) The method of claim 1 further comprising the step of playing out a series of zero-encoding pulses during the predetermined period of time.

6.   (Previously Presented) An MRI apparatus comprising:
a magnetic resonance imaging (MRI) system having a plurality of gradient coils positioned about a bore of a magnet to impress a polarizing magnetic field and an RF transceiver

system and an RF switch controlled by a pulse module to transmit RF signals to an RF coil assembly to acquire MR images; and

a computer programmed to:

segment k-space into a center region and a number of peripheral regions;

determine a distance of each peripheral region from the center region;

sample an MR signal so as to fill each of the number of peripheral regions;

sample an MR signal, subsequent to each sampling of a respective peripheral region, so as to fill the center region, wherein the center region is filled at a faster sampling rate than used to sample each peripheral region; and

wherein each sampling of the MR signal to fill the center region is delayed as a function of the distance of an immediately preceding sampled peripheral region from the center region.

7.   (Original)   The MRI apparatus of claim 6 wherein the computer is further programmed to increase the delay in sampling as the distance of the immediately preceding sampled peripheral region from the center region increases.

8.   (Previously Presented)   The MRI apparatus of claim 7 wherein the increase in delay is a linear increase in delay time.

9.   (Previously Presented)   The MRI apparatus of claim 8 wherein the number of peripheral regions includes at least a first peripheral region and a second peripheral region, with the first peripheral region being closer to the center region than the second peripheral region, and wherein the delay in sampling observed after sampling of the second peripheral region is a multiple of the delay in sampling observed after sampling the first peripheral region.

10.   (Original)   The MRI apparatus of claim 6 wherein the computer is further programmed to play out a series of approximately zero-encoding pulses along one of a slice selective axis and phase-encoding axis during the delay in sampling.

11.   (Canceled)

12.   (Previously Presented) The MRI apparatus of claim 10 wherein a number of approximately zero-encoding pulses in the series of approximately zero-encoding pulses increases as the distance of each peripheral region from the center region increases.

13.   (Original) The MRI apparatus of claim 6 wherein the computer is further programmed to acquire 3D volumetric data during passage of an intra-vascular contrast agent through a patient.

14.   (Previously Presented) A computer readable storage medium having stored thereon a computer program to reduce image intensity variation during MR data acquisition, the computer program including a set of instructions that when executed by a processor causes the processor to:

        partition k-space into a plurality of partitions wherein one partition corresponds to a center of k-space and the other partitions correspond to peripheral regions of k-space;

        determine a distance from the center of k-space for each peripheral region;

        sample a peripheral region; and

        subsequent to sampling of the peripheral region, delay the sampling of the center of k-space by a predetermined value that is a function of the distance of the immediately preceding sampled peripheral region from the center of k-space.

15.   (Original) The computer readable storage medium of claim 14 wherein the set of instructions further causes the processor to play out a number of minimal-encoding pulses prior to the sampling of the center of k-space.

16.   (Previously Presented) The computer readable storage medium of claim 15 wherein the number of minimal -encoding pulses played out prior to sampling of the center of k-space increases as the distance from the center of k-space an immediately preceding peripheral region of k-space increases.

17.   (Previously Presented) The computer readable storage medium of claim 16 wherein the number of minimal -encoding pulses varies linearly as a function of distance of data acquisition from the center of k-space.

18. (Previously Presented) The computer readable storage medium of claim 15 wherein the number of minimal -encoding pulses causes a delay in acquisition before the center of k-space sufficient to minimize eddy current and gradient driver hysteresis .

19. (Original) The computer readable storage medium of claim 15 wherein each minimal-encoding pulse has a zero amplitude.

20. (Previously Presented) The computer readable storage medium of claim 15 wherein each minimal -encoding pulse is one of a slice selective gradient pulse and a phase-encoding gradient pulse.

21. (Original) The computer readable storage medium of claim 14 wherein the set of instructions further causes the processor to sample the center of k-space at a faster rate than each peripheral region.